

Autism Research Review

I N T E R N A T I O N A L

A quarterly publication of the Institute for Child Behavior Research

Reviewing biomedical and educational research in the field of autism and related disorders

New evidence of autistic brain defect reported

Magnetic resonance imaging (MRI) performed on 18 autistic people has revealed cerebellar defects similar to those reported in 1987 MRI and autopsy studies (see ARRI Vol. 1, No. 1).

In an article in the May 26 *New England Journal of Medicine*, researcher Eric Courchesne and colleagues announced findings indicating that autism is "strongly associated" with underdevelopment of two adjacent areas of the cerebellum, a neural coordinating center located at the base of the skull. The cerebellum coordinates motor activity and is also involved — either directly or indirectly — in speech, learning, attention, and autonomic functions.

To rule out the possibility that the defects might be caused by other disorders, Courchesne et al. studied the brains of autistic people who did not have severe mental retardation, cerebral palsy, epilepsy, genetic abnormality, or other neurological disease. In addition, no study subjects had been given anticonvulsant or antipsychotic drugs during brain development.

Thirteen of Courchesne's 18 subjects had full-scale Wechsler IQs between 73 and 108; seven of these individuals held jobs and/or attended college. The other five study subjects had Wechsler IQs between 55 and 70.

All MRI results were evaluated by researchers unaware of which subjects were autistic and which were members of a normal control group or of a second control group with nonautistic disorders. Each MRI scan was "traced" by two people, and evaluated by four researchers, all of whom were "blind" as to diagnosis.

Courchesne and his colleagues found that in 14 of the 18 autistic subjects, two areas of the cerebellum, vermal lobules VI and VII, were "significantly smaller" than

the average size in normal controls. In all but one autistic patient (who also had underdevelopment of vermal lobule VIII) the neighboring vermal lobules I through V and VIII of the cerebellum appeared normal. In the normal group, lobules VI and VII were 72% as large as lobules I through V; in autistics, 59%.

"When the results of magnetic resonance scanning are considered in conjunction with all available post-mortem findings regarding the cerebellum of patients with autism," Courchesne says, "it appears that abnormalities at the cellular and gross anatomical levels are consistently present in various neocerebellar regions

in the great majority of these patients, with or without . . . mental retardation or other neurologic disorders. No other part of the nervous system has been shown to be so consistently abnormal in autism."

According to Courchesne et al., the defects appear to occur during development, rather than as a result of later shrinkage or deterioration. Because the underdeveloped areas of the cerebellum form at different times and have a different developmental course than the non-affected areas, Courchesne says his discovery may be "an important first step" in determining the timing of environmental or genetic events that damage the brain

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Autism Society of America

Annual Conference

"Autism — Focus on the Family"

July 13-16 in New Orleans, Louisiana

For information contact ASA, 1234 Massachusetts Avenue, N.W., Suite 1017, Washington, D.C. 20005, or call (202) 783-0125.

Aversives: Input needed

An upcoming ARRI article will examine the use of aversives to reduce self-injurious and/or aggressive behaviors.

We are interested in hearing from professionals world-wide who are concerned about this issue. In addition to receiving any research papers which might be pertinent to this subject, we would like to hear your views on the following questions:

- Are aversive procedures necessary in some cases, or can all behavior problems in all children be handled through non-aversive means?
- Is it ethical to use aversives? Is it ethical not to use aversives if there are cases in which non-aversive approaches fail?
- Do you believe that it is appropriate to use a hierarchy of treatment approaches, including aversives as a last resort?
- What non-aversive approaches do you find most effective? What aversive approaches do you find most effective?

Your input will be greatly appreciated. Please send your views and/or information about your research on this issue to: Autism Research Review International, 4182 Adams Avenue, San Diego, CA 92116.

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